

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (currently amended) A head retracting method for retracting a head which at least reads information for an information recorded disk to a retract position according to the power supply failure, comprising:

a first step of moving-controlling said head to a predetermined position contacting a stopper in an opposite direction from said retract position such that the velocity of said head becomes constant in the vicinity of said predetermined position; [[and]]

a second step of moving-controlling said head to said retract position after said head reaches said predetermined position such that the velocity of said head becomes constant in the vicinity of said retract position; and

a third step of monitoring the velocity of said head after said movement control of said first step and shifting to said second step when the velocity of said head is a predetermined velocity or less for a first predetermined period of time while said head is in contact with said stopper.

wherein the velocity of said head is monitored by detecting a back electromotive force of an actuator for moving said head.

Claim 2 (previously presented) The head retracting method according to Claim 1, wherein said first step comprises a step of driving the actuator for moving said head with a predetermined first voltage so as to move the head to the predetermined position in an opposite direction from said retract position,

wherein said second step comprises a step of driving said actuator with a predetermined second voltage which is different from said first voltage so as to move the head to said retract position.

Claim 3 (original) The head retracting method according to Claim 1, wherein said first step comprises a step of controlling the movement of the head to a predetermined position in an opposite direction from said retract position according to said predetermined target velocity using a velocity signal fed back from velocity detection unit for detecting the moving velocity of said head,

and said second step comprises a step of controlling the movement of the head to said retract position according to a scheduled target velocity using the velocity signal fed back from said velocity detection unit.

Claim 4 (currently amended) The head retracting method according to Claim 1, further comprising a step of braking an actuator for moving said head for a second predetermined time according to said power supply failure.

Claim 5 (currently amended) The head retracting method according to Claim 2, further comprising a step of braking the actuator by shorting both ends of the coil of the actuator for moving said head for a second predetermined time according to said power supply failure.

Claim 6 (currently amended) The head retracting method according to Claim 1, wherein said first step comprises a step of driving an actuator for moving said head for a second predetermined time so as to move the head to the predetermined position in an opposite direction from said retract position,

and said second step comprises a step of driving said actuator for another predetermined time so as to move the head to said retract position.

Claim 7 (canceled).

Claim 8 (currently amended) A disk apparatus for retracting a head which at least reads information for an information recorded disk to a retract position according to the power supply failure, comprising:

an actuator for moving said head; and

a control unit which moving-controls said head to move to a predetermined position contacting a stopper in an opposite direction from said retract position such that the velocity of said head becomes constant in the vicinity of said predetermined position, and moving-controls

said head to said retract position after said head reaches said predetermined position such that the velocity of said head constant in the vicinity of said retract position;

wherein said control unit monitors the velocity of said head after said movement control to said predetermined position, and shifts to the movement control to said retract position when the velocity of said head is at a predetermined velocity or less for a first predetermined period of time while said head is in contact with said stopper, and

wherein the velocity of said head is monitored by detecting a back electromotive force of an actuator for moving said head.

Claim 9 (currently amended) The disk apparatus according to Claim 8, wherein said control unit drives the actuator using a predetermined first voltage so as to move the head to [[a]] the predetermined position in an opposite direction from said retract position, and then drives said actuator using a predetermined second voltage which is different from said first voltage so as to move the head to said retract position.

Claim 10 (currently amended) The disk apparatus according to Claim 8, further comprising velocity detection unit for detecting the moving velocity of said head,

and wherein said control unit controls the movement of the head to [[a]] the predetermined position in an opposite direction from said retract position according to said predetermined target velocity using a velocity signal fed back from said velocity detection unit

and then controls the movement of the head to said retract position according to a scheduled target velocity using the velocity signal fed back from said velocity detection unit.

Claim 11 (currently amended) The disk apparatus according to Claim 8, wherein said control unit brakes the actuator for moving said head for a second predetermined time according to said power supply failure.

Claim 12 (currently amended) The disk apparatus according to Claim 11, wherein said control unit brakes the actuator by shorting both ends of the coil of the actuator for moving said head for [[a]] the second predetermined time according to said power supply failure.

Claim 13 (currently amended) The disk apparatus according to Claim 8, wherein said control unit controls the movement of the head to a predetermined position in an opposite direction from said storage position by driving the actuator for moving said head for a second predetermined time, and then controls the movement of the head to said retract position by driving said actuator for ~~another~~ a third predetermined time.

Claim 14 (canceled).

Claim 15 (previously presented) The disk apparatus according to Claim 8, further comprising a ramp for parking said head at said retract position.

Claim 16 (currently amended) A head actuator control circuit for retracting a head which at least reads information for an information recorded disk to a retract position according to the power supply failure, comprising:

a power monitoring circuit for detecting said power supply failure; and

an actuator control circuit which moving-controls said head to a predetermined position contacting a stopper in an opposite direction from said retract position such that a velocity of said head becomes constant in the vicinity of said predetermined position according to the power supply failure detection of said power supply monitoring circuit, and then moving-controls said head to said retract position after said head reaches said predetermined position such that the velocity of said head moving to said retract position becomes constant in the vicinity of said retract position,

wherein said control unit monitors the velocity of said head after control of movement to said predetermined position is performed, and shifts to the control of movement to said retract position when the velocity of said head is at a predetermined velocity or less for a first predetermined period of time while said head is in contact with said stopper, and

wherein the velocity of said head is monitored by detecting a back electromotive force of an actuator for moving said head.

Claim 17 (original) The head actuator control circuit according to Claim 16, wherein said actuator control circuit comprises:

a voltage mode driver; and

a controller for controlling said voltage mode driver to drive the actuator for moving said head using a predetermined first voltage so as to move the head to a predetermined position in an opposite direction of said retract position, and then to drive said actuator using a predetermined second voltage which is different from said first voltage so as to move the head to said retract position.

Claim 18 (original) The head actuator control circuit according to Claim 16,

wherein said actuator control circuit comprises:

velocity detection unit for detecting the moving velocity of said head; and

a controller which controls the movement of the head to a predetermined position in an opposite direction of said retract position according to said predetermined target velocity using a velocity signal fed back from said velocity detection unit, and then controls the movement of the head to said retract position according to a scheduled target velocity using the velocity signal fed back from said velocity detection unit.

Claim 19 (currently amended) The head actuator control circuit according to Claim 16, further comprising a brake circuit for braking the actuator for moving said head for a second predetermined time according to said power supply failure.

Claim 20 (currently amended) The head actuator control circuit according to Claim 19, wherein said brake circuit comprises a circuit for shorting both ends of the coil of the actuator for moving said head for ~~[[a]]~~ the second predetermined time according to said power supply failure.

Claim 21 (currently amended) The head actuator control circuit according to Claim 16, wherein said control unit controls the movement of the head to a predetermined position in an opposite direction from said retract position by driving the actuator for moving said head for a second predetermined time, then controls the movement of the head to said retract position by driving said actuator for ~~another~~ a third predetermined time.

Claim 22 (canceled).